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## AN INTEGRATED PULLEY-TORSIONAL DAMPER ASSEMBLY

TECHNICAL FIELD

5       The present invention relates to an integrated pulley-torsional damper assembly.

BACKGROUND ART

Integrated pulley-torsional damper assemblies are known, which comprise a hub designed for being rigidly  
10       connected to a drive member, for example the drive shaft of an internal-combustion engine, a pulley connected to the hub by means of a first ring made of elastomeric material having the function of filter for torsional oscillations, and a inertia ring, connected to the hub  
15       by means of a second ring made of elastomeric material, which defines with the inertia ring a damping system.

Integrated assemblies of the type described briefly above are used, for instance, in the automotive sector and are connected, at one end of the drive shaft of an  
20       internal-combustion engine, to enable driving, by means of a belt transmission, of auxiliary members of the engine, for example, an alternator, a fan and/or a compressor, and enable, at the same time, damping of the torsional oscillations of the drive shaft.

25       DISCLOSURE OF INVENTION

The purpose of the present invention is to provide

an integrated pulley-damper assembly of an improved type, which has a particularly small number of components and presents contained axial dimensions.

The aforesaid purpose is achieved by the present  
5 invention, in so far as it relates to an integrated pulley-torsional damper assembly, which comprises a hub designed for being rigidly connected to a drive member, a pulley connected to the hub by means of a first ring made of elastomeric material having the function of  
10 filter for torsional oscillations, a inertia ring, connected to the hub by means of a second ring made of elastomeric material, which defines with the inertia ring a damping system, the said hub comprising an internal annular flange designed for connection to said  
15 drive member, characterized in that said hub comprises, integrally with said flange, an annular coupling portion having a substantially C-shaped cross section, which is open axially on the side where said flange is located and forms a cavity housing said first elastomeric ring,  
20 said coupling portion comprising an outer tubular wall, on which is fitted said second elastomeric ring, a bearing being set between said outer tubular wall and said pulley for radial and axial support of said pulley with respect to said hub.

25 BRIEF DESCRIPTION OF THE DRAWING

For a better understanding of the present

## CLAIMS

1. An integrated pulley-torsional damper assembly, which comprises a hub (2) designed for being rigidly  
5 connected to a drive member (3), a pulley (4) connected to the hub (2) by means of a first ring (5) made of elastomeric material having the function of filter for torsional oscillations, a inertia ring (6), connected to the hub (2) by means of a second ring (7) made of  
10 elastomeric material, which defines with the inertia ring (6) a damping system, the said hub (2) comprising an internal annular flange (10) designed for connection to said drive member (3), said assembly being characterized in that said hub (2) comprises, integrally  
15 with said flange (10), an annular coupling portion (14) having a substantially C-shaped cross section, which is open axially on the side where said flange (10) is located and forms a cavity (9) housing said first elastomeric ring (5), said coupling portion (14)  
20 comprising an outer tubular wall (12), on which is fitted said second elastomeric ring (7), a bearing (34) being set between said outer tubular wall (12) and said pulley (4) for radial and axial support of said pulley (4) with respect to said hub (2).

25 2. The assembly according to Claim 1, characterized in that it comprises a coupling flange (25), provided

with an inner annular wall (26), which bears axially upon said flange (10) of said hub (2), and with a peripheral annular edge (17), said first elastomeric ring (5) being fitted to said pulley (4) and to said  
5 peripheral annular edge (17) of said coupling flange (25).

3. The assembly according to Claim 1 or Claim 2, characterized in that said pulley (4) comprises a peripheral crown (16) and a flange (17), which extends  
10 radially towards the inside from said peripheral crown (16), said flange (17) comprising an external annular portion (19), an intermediate tubular wall (20) coaxial with respect to said crown (16) and internal thereto, and an internal annular flange (21), which extends from  
15 an axial end of the tubular wall (20) opposite to the external annular portion (19) and connected to said first elastomeric ring (5).

4. The assembly according to Claim 3, characterized in that said first elastomeric ring (5) is set axially  
20 between said flange (16) of said pulley (4) and said external flange (12) of said hub (2), and forms a single body with them.

5. The assembly according to Claim 3 or Claim 4, characterized in that said bearing (34) comprises  
25 integrally a tubular portion (35), radially set between said external tubular wall (12) of said hub (2) and said

intermediate tubular wall (20) of said pulley (4), and a flange (36), axially set between said external annular portion (19) of said flange (17) of said pulley (4) and said outer tubular wall (12) of said hub (2).